Environmental Justice in Action

In Lowell, Massachusetts, television reporter Noreth Tim Som spends five minutes of a local Cambodian-language news program talking about environmental health issues in this former textile city. He provides his regular viewers from among the 20,000 Cambodian residents of the city's poorest neighborhoods with updates on topics ranging from lead paint to water quality. With this innovative approach, immigrants are learning how to improve their environmental health and that of their communities.

This show is supported by an NIEHS environmental justice grant program begun three years ago following a 1994 presidential executive order directing federal agencies to address environmental justice issues. The program now funds 12 projects around the country, each a partnership between community organizations, research scientists, and primary health care providers mainly in both rural and urban African-American, Hispanic, Asian, and Native-American communities.

"What's different and unusual about this grant program is that these three distinct groups are sharing responsibilities and resources," says Allen Dearry of the NIEHS Division of Extramural Research, administrator of the grant program. "As a collaboration, it's an excellent example of partnerships in action. And I would say it's achieving its goals of enhancing community awareness and of linking residents with researchers and health care providers fairly well."

Environmental justice is a critical public health issue that includes the need to inform and empower members of minority groups and medically underserved communities, who are often exposed to above-average levels of environmental pollution and hazardous substances. The hazards are many; for example, high exposures to lead and air pollution plague the inner cities, while toxic waste, pesticides, and radioactivity appear in rural counties. Lead poisoning, high blood pressure, prostate cancer, and low birth weight babies are also common in such communities. In addition, local medical care is often inadequate to diagnose these conditions and diseases.

In response, the NIEHS-supported partnerships are seeking creative ways to reach their communities and encourage residents to get involved in bettering the environmental health of their homes and neighborhoods. From Harlem to rural North Carolina, from the Mohawk Nation to urban California, grant recipients are developing educational and training materials, organizing public forums, designing community surveys, and establishing education centers. Each program is tailored to the cultural and linguistic needs of the ethnic minorities it serves.

Since 1994, 40–50 applicants have applied for the grant each year. Of those, 3–5 applicants have been selected for funding, based mostly on the recommendations of a peer-review panel. Successful applications include a member of a community organization from an underserved area affected by an environmental pollutant, a primary health care provider working in that community, and a research scientist in environmental health sciences. The $150,000 annual grant covers direct costs and is divided among the three personnel groups. Some recipients have been involved in their community's environmental health issues for many years, while others are just getting started.

Steve Wing

Making a statement. Residents of Halifax County in North Carolina protest the environmental effects of hog farm operations in the mostly African-American community.

In the Cities

The city of Lowell ranks high in the state and the nation in toxic releases, hazardous waste generation, and industrial air emissions from incinerators. Lowell also contains a Superfund site and 97 additional confirmed or suspected hazardous waste sites. Many of the residents affected are the 25,000 Southeast Asians, mostly Cambodian and Laotian, who live in the poorest neighborhoods. But informing these groups has often been difficult. Each has a distinct language and culture; many do not speak English and are illiterate in their own language. The most effective dissemination of information is oral communication within the group's cultural context.

"Realizing the challenges of targeting information to populations that are at low literacy, it was very difficult to get the word out," says Jane Benfey, public health administrator for the City of Lowell and a subcontractor with the Southeast Asian Environmental Health grant project. "And not every neighborhood has the same issues. But they're all entitled to the same standards and [quality of life] that other people have. Our main message is, 'You don't have to just live with it.' So they're learning to use government when government is the answer."

Benfey's team uses focus groups to discuss environmental health issues with Southeast Asian residents. "The questions from the community are extremely insightful," she says. "People want to know what they can do to protect their family. One of their biggest concerns is lead paint and lead in the soil. We also run environmental tours of high-risk neighborhoods to help residents realize that what looks like a pile of garbage may be toxic. We let them know who to call if they see a chemical oozing out of a barrel."

In Manhattan's Harlem, a large percentage of African Americans and Latinos are exposed to particulate matter and carbon monoxide from traffic and sulfates, nitrates from a nearby sewage treatment plant, and lead paint and allergenic debris from roaches and rodents in their homes. Grant recipient West Harlem Environmental Action (WHEACT), through a program called Environmental Justice Outreach in northern Manhattan, is planning a series of three town meetings to inform residents and initiate feedback.

"We've had very good response so far," says Peggy Shepard, executive director

NIEHS

Justice seekers. New grantees represented at the 1996 Environmental Justice grantees meeting include Navajo Community College, WHEACT-West Harlem Environmental Action, Inc., the Urban Appalachian Council, the University of North Carolina at Chapel Hill, and the Council of Athabascan Tribal Governments.

and cofounder of WHEACT, and principal investigator for the outreach grant. "For example, we went to a public housing meeting and brought booklets on asthma, a real problem in Harlem. We were the hit of the meeting. We found that people don't want their first contact to be with someone just asking them for something. This says to me that people are hungry for communication, to connect with these issues. So we give them information they can use."

Town meetings and visits with community associations will also be used to recruit local residents for training on specific environmental issues. They will then be assigned as public speakers in their neighborhoods. "We're looking for community leaders because they already have a constituency in their neighborhoods," says Shepard, "and they can become important community advocates. So if the city cuts back on waste management services, for example, these people understand the implications and can get involved by testifying or making calls."

Another focus of the grant program is educating medical providers on specific health threats in their communities. Shepard says her group has developed a "patient's passport"—a booklet that records medications, symptoms, and exposures, such as a "bad air" day, which the patient presents to the physician at each visit.

"We're also working on a questionnaire for the practitioners," she says. "It helps them ask their patients important questions like whether they live near a polluting facility or are exposed to toxins at work. It's very helpful. If a doctor is seeing someone with asthma and doesn't realize they're living across from a polluting facility, [they may not realize that] this might help explain the symptoms. Otherwise, these are questions that are rarely asked."

In Richmond, California, Laotian immigrants often live in poor areas alongside the 350 industrial facilities that encircle the city. Such proximity exposes them to emissions from waste incinerators, oil refineries, pesticide and fertilizer plants, and other chemical manufacturers. Many residents also work in high-hazard, low-income jobs, and are exposed to lead at home. Because few are English-literate, the Richmond Laotian Environmental Justice Collaboration has used a combination of audio, video, and door-to-door methods to reach the community.

"Their homes are often old, pre-1950s buildings full of lead," says Dearry. "They have grown food in home gardens next to industrial plants and caught fish in the polluted rivers. As they did in Laos, they would eat all of the fish, including the organs where pollutants are concentrated. One of the goals of the program is to make them more aware of pollution sources as well as encourage them to find a different place to garden and to eat only the flesh of the fish."

In the Countryside

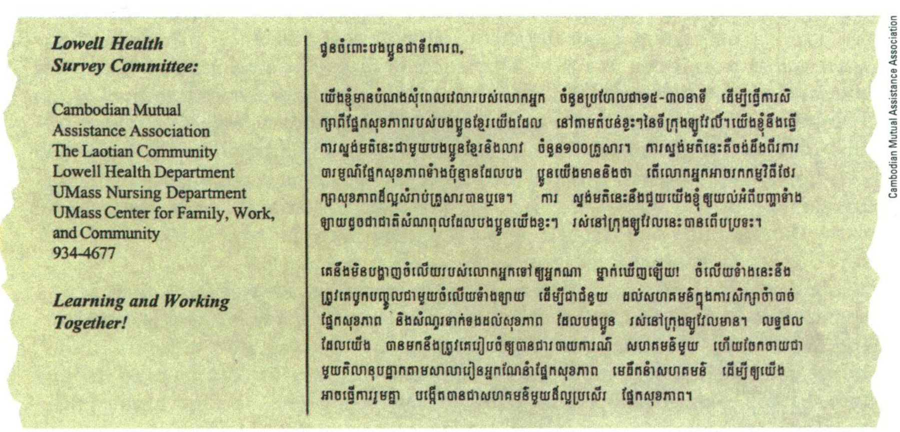
Eating contaminated fish is also a problem in the Mohawk community of northern New York. Members of the Mohawk Nation at Akwesasne are exposed to a variety of hazards because of their rapid transition from an agricultural to an industrial economy. Chief among the concerns are PCBs found in local fish—a protein staple of the Mohawk diet—and in human breast milk.

One of the program's first grant recipients, the Akwesasne First Environment Communications Program, is designing community-based strategies to reach the Mohawk population. Because of their long oral tradition, residents tend to ignore written information such as brochures and pamphlets and respond better to a more personal approach. They also have access to Western medical practitioners and traditional caregivers so training programs for health care providers must be designed to reach both.

"We always felt the outreach to the community was inadequate," says David Carpenter, dean of the School of Public Health at State University of New York and research scientist on the grant. "We worked with Katsi Cook, a Mohawk nurse midwife, on developing the program. And it has been extraordinarily successful, primarily because it provides for a Mohawk staff. So the people working in the community are Mohawks themselves."

For example, the program is producing a "Good Health" radio show in the Mohawk language and organizing environmental health fairs at the local schools. "Another way is with an informational session, often informal and in people's homes," adds Carpenter. "This way we can really reach people in the community, many of whom are alienated and distrustful of people in institutions. We've worked very hard to establish a relationship of trust."

Because of the frequent lack of an established infrastructure, organizing rural community members can provide more



Cambodian Mutual Assistance Association

Now you're talking. The Southeast Asian Environmental Health grant project uses native language pamphlets to help educate Cambodian communities in the United States on health issues.

The Question of Asthma and Race

In the early 1980s, studies were published showing a relationship between race and environmental risk, raising concerns that minority populations were being unfairly affected by pollution. Around this time, researchers also began to notice that asthma prevalence was significantly higher in minority communities. In one 1990 study published in the *American Review of Respiratory Disease*, asthma prevalence in black children was found to be 7.2%, as compared with 3.0% among white children. A 1994 study published in *Pediatrics* found extraordinarily high rates of asthma in New York City's minority Bronx neighborhoods—as high as 12.8%.

For many, the relationship between race and asthma seemed to be clear evidence that the health of minorities was being compromised by inequitable environmental practices. A study published in the 23 October 1996 issue of the *American Journal of Public Health* suggests, however, that differences in asthma prevalence may be due as much to differences in diagnosis as to differences in environment.

This study by Joan Cunningham, Douglas W. Dockery, and Frank E. Speizer of the Harvard School of Public Health focused on the prevalence of asthma and persistent wheeze among 1,416 black and white Philadelphia school children age 9–11. Wheezing is one of the primary symptoms of asthma. The study found, as most previous studies had, that black race was a significant predictor of diagnosed asthma; 9.4% of black children were reported to be asthmatic, while only 5.2% of white children were reported to be diagnosed with the disease. However, when the prevalence of persistent wheeze in the two groups was analyzed, no statistically significant difference was found (9.1% prevalence for black children versus 6.8% for white children). These results led the researchers to conclude that part of the discrepancy in asthma prevalence between races could be explained by differences in diagnosis. "The issue that we're raising is that blacks tend to get the diagnosis of asthma more than whites," Dockery said.

Why symptomatic blacks are diagnosed with asthma more often than symptomatic whites is puzzling, Dockery said, but he offers one scenario that may explain the difference: "It may be that low-income minorities are less likely to have a general practitioner that they visit regularly. Instead, they are more likely to seek emergency room care. If these children come into the hospital on an emergency basis with a breathing problem, . . . and if they respond to a bronchiodilator, they are very likely to be labeled as asthmatic." On the other hand, Dockery said, more affluent children may be treated for breathing problems, including persistent wheeze, by a family doctor, but because this type of care is less episodic, doctors don't feel pressured to make an immediate asthma diagnosis. An editorial by Peter Gergen, a health scientist administrator at the Agency for Health Care Policy Research, that also appears in the 23 October 1996 *American Journal of Public Health* supports this explanation, pointing out that studies have shown that poor children are more likely to use emergency rooms as their principal source of health care. "We are faced with the paradox that inadequate care can contribute to increased diagnostic labeling of wheezing episodes among poor children," Gergen writes.

The Harvard group is not the first to propose that differences in asthma prevalence across races is due in part to differences in diagnosis; a similar conclusion was proposed in the 1994 article in the journal *Pediatrics*. However, the authors of the Harvard study point out that these results do not imply that there are no other factors influencing the higher rates of asthma seen in minorities. For example, low socioeconomic status may increase the prevalence of asthma diagnosis among minority children in two ways—first, by exposing them to harmful agents that actually cause the condition and, second, by forcing them into the type of sporadic health care that results in a quick diagnosis.

"Part of this seems to be difference in diagnosis, but we still think there is . . . some environmental factor that these studies have not brought out that is contributing [to asthma]," Dockery said. Research is now uncovering how exposure to dust mites, cockroaches, pets, mold spores, and endotoxins might contribute to the disease, he said. Several intervention trials are now taking place to see if healthy environments can reduce a person's chances of developing asthma symptoms.

challenges than in the cities, according to Steve Wing, associate professor of epidemiology at the University of North Carolina at Chapel Hill School of Public Health and principal investigator of the Southeast Halifax Environmental Reawakening in Tillery, North Carolina. Tillery and Halifax County are in the midst of a sharp rise in the number and intensity of hog production operations over the past ten years. The state now ranks second in hog production nationwide and most of the new facilities have been built in the "Black Belt" counties—counties with large African-American populations—according to an article by Wing and colleagues in the October 1996 issue of *Environment and Urbanization*.

Poor rural residents often depend on shallow wells, putting them at particular risk for exposure to groundwater pollution caused by the hog operations. The project hopes to better inform residents and health professionals, to encourage them to help prevent and remediate environmental health problems, and to develop educational materials that can be used throughout eastern North Carolina.

"Actual chemical or bacteria contamination is only part of the issue in environmental justice," says Wing. "The hog factories are also driving down land prices, putting local farmers out of work, and changing the food supply by flooding the market with cheap pork. Plus, the odors are a very noxious presence in the community. These are all environmental justice issues; they all have health effects."

In the Future

The environmental justice grant program also supports projects in southeast Los Angeles, Baltimore, Yukon Flats, Alaska, urban Appalachia, Alabama, Texas, and the Navajo, Shoshone, and Cherokee nations. Each region has shaped its objectives and methods to effectively respond to the needs of their communities.

While the grants provide for efforts in public education and community outreach, they do not support medical or epidemiological research in their underserved communities. However, Wing hopes the program will help develop stronger ties with local residents and allow researchers to better analyze environmental health problems and propose solutions in the future.

"In the rural South, there's a history of unethical treatment of poor blacks," says Wing. "They have a real mistrust of the medical establishment. To have doctors say they want to see them just to draw blood, it turns them into research [subjects]. I feel this is wrong. So the only right way is to

have community members say, 'Okay, we know enough about the problems, so please come and work with us.' It's really a democratization of science itself."

Carpenter agrees. "The Mohawks argue very vigorously that they have coownership of any information that belongs to them," he says. "They say, 'You can't just take our blood and go off and publish and ignore us.' So it has to be a partnership."

For additional information on the environmental justice grants program, contact Allen Dearry or Sharon D. Beard at the NIEHS, PO Box 12233, Research Triangle Park, NC 27709; phone: 919-541-1117.

Rebecca Clay Haynes

The NIEHS Recycles

With the help of a few dedicated employees and some 20,000 redworms, the NIEHS uses tons of waste every month that would otherwise have been dumped into landfills. By absorbing 30–40% of the institute's waste stream, the NIEHS recycling program, managed by the Environmental Awareness Advisory Committee (EAAC), has become one of the most successful in the federal government.

The redworms are the newest addition to the NIEHS waste management system, which includes regular recycling of over 20 different materials. The worms are the productive part of two composting bins that were brought to the NIEHS last year. Each day, they work to turn 10–20 pounds of shredded paper and cafeteria waste into a rich mulch that is used for groundskeeping at the institute. Inside the two bins, which resemble oversized trash cans, the waste is piled on steel grates that are raised about a foot from the bottom. The worms feed on the waste and their castings fall through the grate, where they can be collected through doors built into the sides. Dick Sloane, project officer of the EAAC, says the worms are capable of producing a steady harvest of nutrient-rich fertilizer at a rate of 2–4 cubic feet per week.

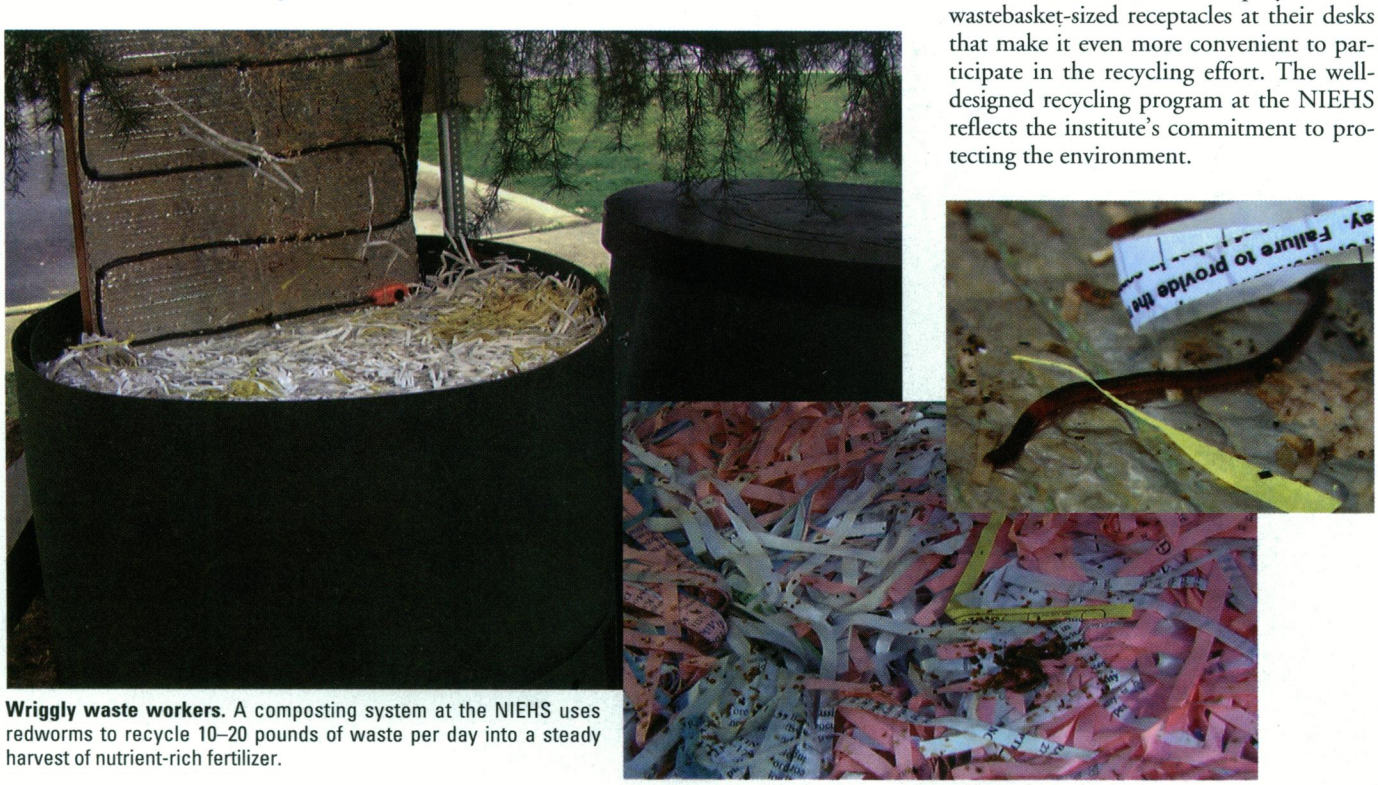
As of August 1996, the NIEHS had recycled over one million pounds of material—over 20 pounds per employee per month. The following are the most commonly recycled materials at the NIEHS, with the percent of the total recycling effort that each comprises:

white office paper	33%
other office fiber paper	20%
corrugated cardboard	17%
magazines	15%
newspaper	6%
wooden palettes	1.5–2.0%

En route to new uses. The NIEHS recycles a variety of materials such as white paper, cardboard, glass, and plastics.

Other items that are recycled at the NIEHS in smaller amounts are beverage glass, telephone books, styrene foam, Tyvec labwear, aluminum cans, steel cans, plastics (#1, #2, #3, and #5), polystyrene laboratory plastics, floppy disks, cafeteria waste, and cold-pack bags. Because of shortages in demand, the institute has had to stop collecting some materials including glossy magazines and some types of plastic. Although aluminum cans account for less than 1% of the recyclable waste at the NIEHS, they generate more revenue than any of the other materials for the recycling program.

Most offices at the NIEHS are within a short distance of a set of recycling bins, which are emptied regularly by EAAC staff. In addition, most employees have wastebasket-sized receptacles at their desks that make it even more convenient to participate in the recycling effort. The well-designed recycling program at the NIEHS reflects the institute's commitment to protecting the environment.



Wriggly waste workers. A composting system at the NIEHS uses redworms to recycle 10–20 pounds of waste per day into a steady harvest of nutrient-rich fertilizer.